

DEPARTMENT OF  
**ECOLOGY**  
State of Washington

**FACT SHEET**

**Proposed Permit Modification, 8C.2023.1D, of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, Part V Closure Unit Group 27, 277-T Building; Closure Unit Group 28, 277-T Outdoor Storage Area; Closure Unit Group 29, 271-T Cage; Closure Unit Group 30, 211-T Pad; Closure Unit Group 37, 221-T Sand Filter Pad; Closure Unit Group 39, 2401-W Waste Storage Building; and Closure Unit Group 41, 221-T Railroad Cut, WA7890008967**

March 9, 2023

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## FACT SHEET

**Proposed Permit Modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, WA7890008967, to modify and add Closure Unit Group 27, 277-T Building; Closure Unit Group 28, 277-T Outdoor Storage Area; Closure Unit Group 29, 271-T Cage; Closure Unit Group 30, 211-T Pad; Closure Unit Group 37, 221-T Sand Filter Pad; Closure Unit Group 39, 2401-W Waste Storage Building; and Closure Unit Group 41, 221-T Railroad Cut**

### PERMITTEES

United States Department of Energy  
Richland Operations Office  
(Owner/Operator)  
P.O. Box 550, MSIN A7-50  
Richland, WA 99352

Central Plateau Cleanup Company LLC  
(Co-Operator)  
P.O. Box 1464, MSIN: A7-01  
Richland, WA 99352

The Washington State Department of Ecology (Ecology) developed this Fact Sheet in accordance with the requirements of Washington Administrative Code (WAC) 173-303-840(2)(f). Its purpose is to discuss the proposed draft permit modification to Part V of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (hereafter called the Hanford Site-wide Permit). All draft permits must be accompanied by a Fact Sheet that is supported by administrative record and made available for public comment in accordance with WAC 173-303-840(2)(e). This Fact Sheet is supported by the Ecology Nuclear Waste Program (NWP) Administrative Record for this permit modification.

On December 6, 2021, Ecology issued Modification No. 8C.2021.1F to the Hanford Site-wide Permit and incorporated the Modification into Part V of the Hanford Site-wide Permit. This Modification incorporated both Closure Plans and Unit-Specific Permit Conditions for several Closure Unit Groups (CUGs)/dangerous waste management units (DWMUs) within Solid Waste Operations Complex (SWOC). These CUG/DWMUs included:

- CUG 27, 277-T Building.
- CUG 28, 277-T Outdoor Storage Area.
- CUG 29, 271-T Cage.
- CUG 30, 211-T Pad.
- CUG 37, 221-T Sand Filter Pad.
- CUG 39, 2401-W Waste Storage Building.
- CUG 41, 221-T Railroad Cut.

On January 5, 2022, the United States Department of Energy, Richland Operations Office (DOE-RL) and the Central Plateau Cleanup Company LLC (CPCCo) appealed the Modification to the Pollution Control Hearing Board (PCHB). An Appeal Hearing was scheduled for January 16-19, 2023. In lieu of a hearing, all parties agreed to mediation to try to settle the disputes. A Settlement Agreement was reached in October 2022,<sup>1</sup> in which modifications will be made to the seven Unit-Specific Permit Condition files and five of the seven Closure Plan files. The other two Closure Plans did not require any changes per the Settlement Agreement and are not going back out for public comment for that reason. These two Closure Plans will be issued into the permit with the other twelve files when the public comment period is completed.

This proposed Agency-Initiated Permit Modification will modify and add the following to Part V of the Hanford Site-wide Permit: CUG 27, 277-T Building, CUG 28, 277-T Outdoor Storage Area, CUG 29, 271-T Cage, CUG 30, 211-T Pad, CUG 37, 221-T Sand Filter Pad, CUG 39, 2401-W Waste Storage Building, and CUG 41, 211-T Railroad Cut. These units have had changes made to their permit files to reflect the changes specified within the Settlement Agreement.

This Fact Sheet is divided into seven sections:

- 1.0 Hanford Site-wide Permit Background.
- 2.0 CUG Descriptions.
- 3.0 Class 3 Permit Modification Process for the CUGs History.
- 4.0 2021 Class 3 Permit Modification Appeal and 2022 Settlement Agreement.
- 5.0 2023 Proposed Agency-Initiated Permit Modification to Part V of the Hanford Site-wide Permit.
- 6.0 Procedures for Reaching a Final Decision on the Draft Permit Modification.
- 7.0 State Environmental Policy Act (SEPA).

## **1.0 HANFORD SITE-WIDE PERMIT BACKGROUND**

Ecology's NWP manages dangerous waste within the State by writing permits to regulate its treatment, storage, and disposal.

Ecology has the authority to regulate dangerous waste and the dangerous waste components of mixed (radioactive and dangerous) waste, under 70.105 Revised Code of Washington (RCW) and WAC 173-303. The Hanford Site-wide Permit has requirements for the treatment, storage, and disposal of dangerous and/or mixed waste at Hanford. Ecology does not regulate waste that is solely radioactive. The U.S Department of Energy (USDOE) has the exclusive authority to regulate radioactive materials and radioactive waste at Hanford.

Ecology first issued the Hanford Site-wide Permit in 1994. Since 1994, the permit has been modified several times to incorporate changes or updates and to incorporate and closeout several DWMUs.

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<sup>1</sup><https://fortress.wa.gov/ecy/nwp/permitting/hdwp/rev/8c/permitting/2022-10-18OrderCont.pdf>.

The Hanford Site-wide Permit provides standard and general facility conditions, as well as unit-specific permit conditions for the operation, closure, and post-closure care of mixed and dangerous waste Treatment, Storage, and Disposal (TSD) Units at Hanford. These TSDs are administratively grouped into operating, closure, or post-closure unit groups in the Hanford Site-wide Permit. Each unit group may contain one or more DWMU.

The Hanford Site-wide Permit is organized as follows:

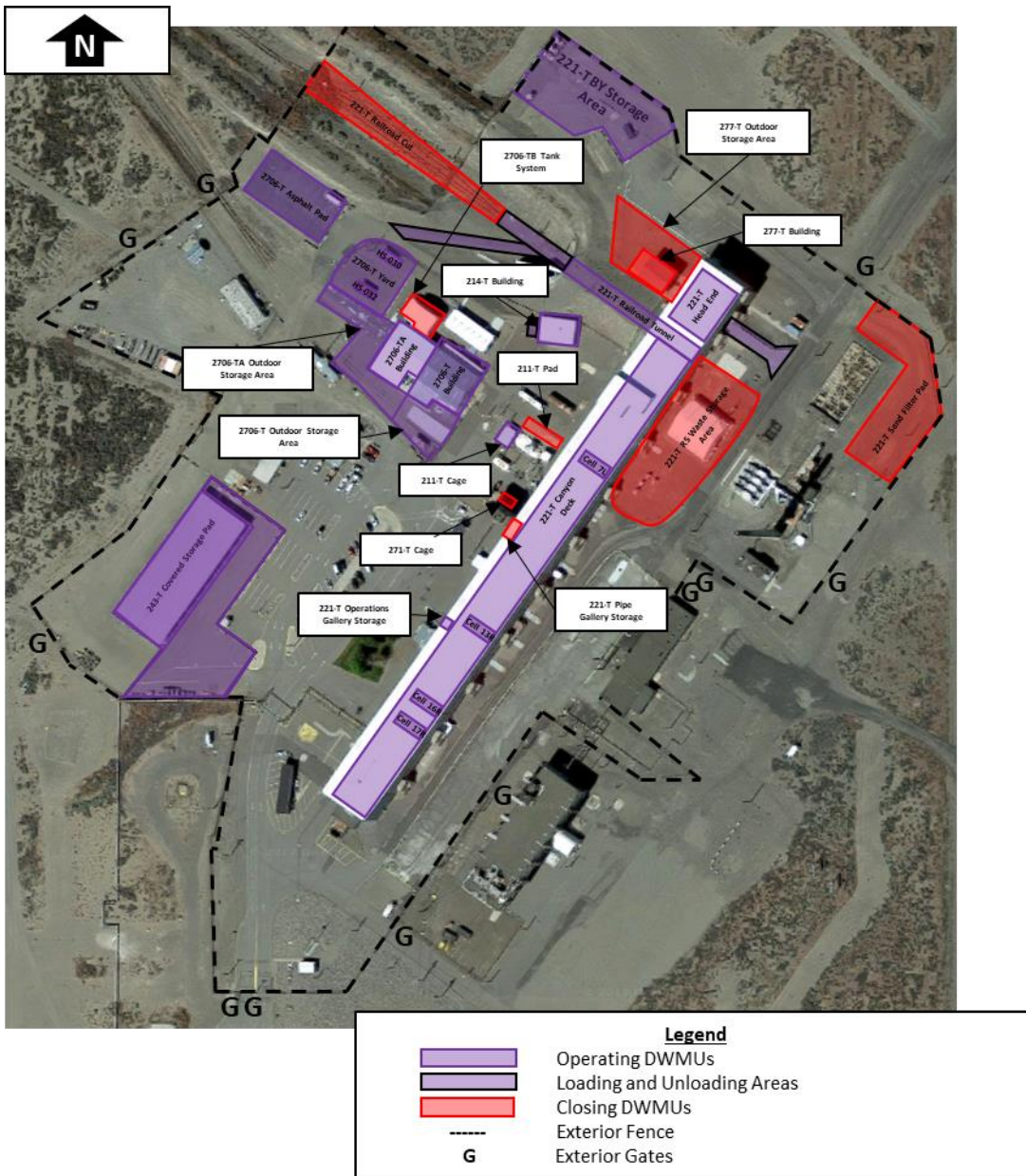
- Part I Standard Conditions.
- Part II General Facility Conditions.
- Part III Operating Units.
- Part IV Corrective Action for Past Practice Units.
- Part V Closure Units.
- Part VI Post-Closure Units.

Upon approval and issuance of this permit modification the CUG 27, 277-T Building; CUG 28, 277-T Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; CUG 37, 221-T Sand Filter Pad; CUG 39, 2401-W Waste Storage Building; and CUG 41, 221-T Railroad Cut will be added to Part V of the Hanford Site-wide Permit. Approval of this permit will authorize the Permittees to begin closure activities.

## **2.0 CLOSING UNIT GROUP DESCRIPTIONS**

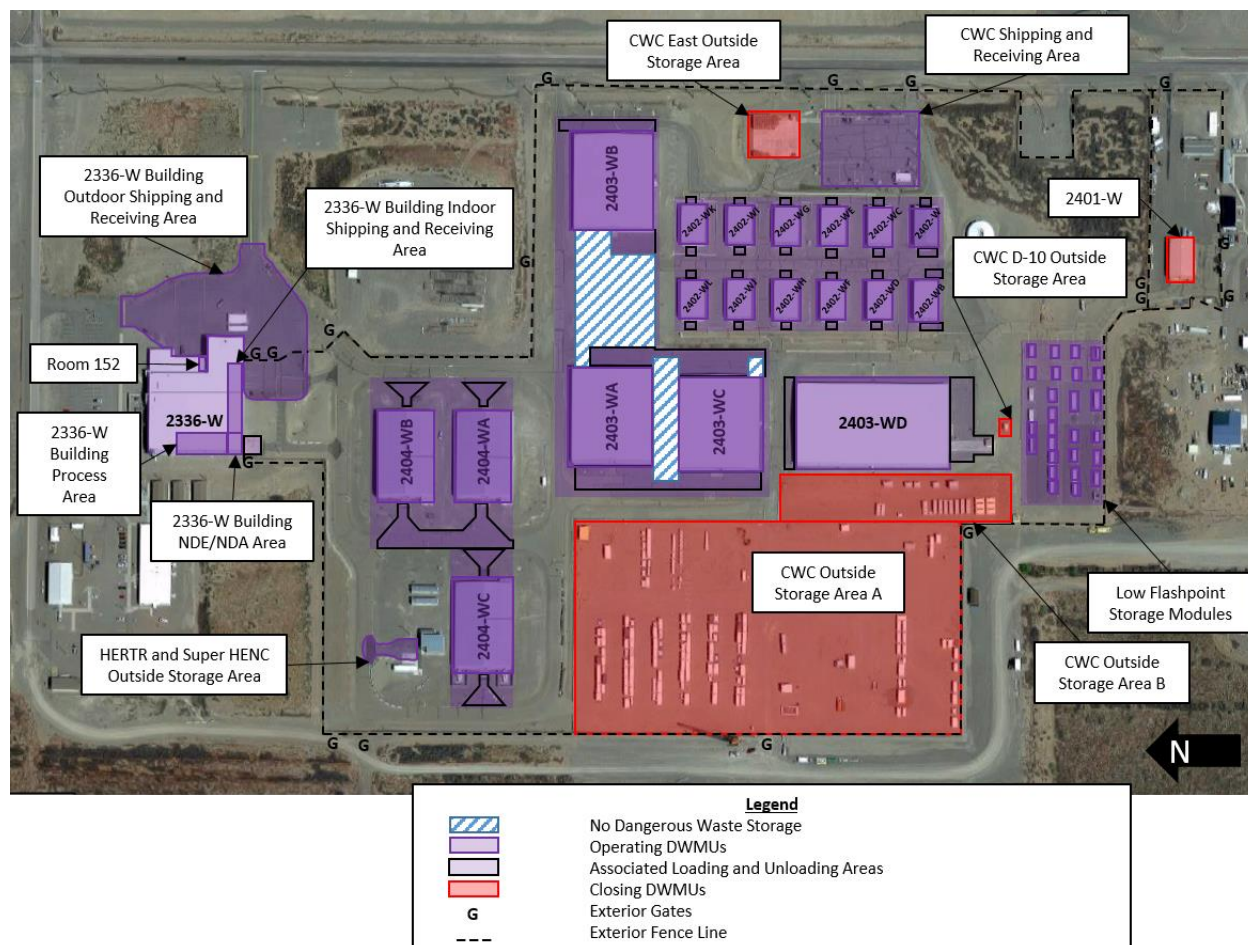
The T Plant Complex is located within the Hanford Facility's 200 West Area. T Plant's main processing building (221-T Canyon Building) was constructed in 1943 for chemical separation of plutonium from uranium fission and activation products, using the Bismuth-Phosphate/Lanthanum-Fluoride process. Beginning in 1957, the T Plant Complex was used for decontamination operations. Currently, the primary permitted missions of the T Plant Complex are treatment and storage of dangerous and mixed waste, waste characterization, container venting, verification sampling, and waste repackaging. The T Plant Complex contains multiple operating and closing DWMUs. Six of the seven closing DWMUs included in this permit modification are located at the T Plant Complex (Figure 1). Note: The DWMUs shown on Figure 1 that are not included in this permit modification will be included in future permit modifications.

The combined Central Waste Complex (CWC) – Waste Receiving and Processing Facility (WRAP) is also located within the Hanford Facility's 200 West Area. Dangerous waste and mixed waste management operations began at CWC in August 1988. WRAP began dangerous waste and mixed waste management operations in March 1997. Currently, CWC-WRAP provides container storage and treatment of dangerous and mixed waste. The CWC-WRAP contains multiple operating and closing DWMUs. One of the seven closing DWMUs included in this permit modification is located at the CWC-WRAP (Figure 2). Note: the DWMUs shown on Figure 2 that are not included in this permit modification will be included in future permit modifications.



### Figure 1 T Plant Complex (Month Unknown 2017)





**Figure 2 Central Waste Complex-Waste Receiving and Processing Facility  
(Month Unknown 2017)**

## 2.1 Closing Unit Group 27, 277-T Building

The 277-T Building DWMU (Figure 3) is located west of the T Plant Complex, 221-T Canyon Building and adjacent to the 277-T Outdoor Storage Area. The 277-T Building is a single story, pre-engineered, steel structure constructed of I-beams covered with corrugated steel on a concrete slab-on-grade foundation. The 277-T Building floor is uncoated concrete. The building is approximately 33 feet wide by 39 feet long by 23 feet high. The 277-T Building contains one sump on the north side of the building approximately 10 feet long by 2 feet wide that provided for the collection and drainage of water from condensate blowdown lines.

The 277-T Building stored one container of mixed waste with a total volume of 27 m<sup>3</sup>. The waste container was over-packed and stored from December 2002 until September 2003. The 277-T Building does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 277-T Building DWMU. The 277-T Building is currently used for equipment and material storage to support T Plant operations.



**Figure 3 T Plant 277-T Building Exterior (May 2017), Looking Southeast**

## 2.2 Closing Unit Group 28, 277-T Outdoor Storage Area

The 277-T Outdoor Storage Area (OSA) DWMU (Figure 4) is located west of the T Plant Complex, 221-T Canyon Building and north of the 221-T Railroad Tunnel. The 277-T OSA is 95 feet on the south side by 86 feet on the west side by 135 feet on the north side by 76 feet on the east side. The 277-T OSA consists of two uncoated concrete pads in front of and behind the 277-T Building, and an asphalt area surrounding the 277-T Building. The 277-T OSA was previously used for storing containers of various sizes and volumes, and a variety of waste streams to ensure adequate capacity and operational flexibility to support T Plant activities.



Weekly waste management area inspection records identified that the 277-T OSA may have managed dangerous and mixed waste in a central accumulation area (CAA) or satellite accumulation area (SAA). The 277-T OSA does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 277-T OSA DWMU.



**Figure 4 T Plant 277-T Outdoor Storage Area (May 2017), Looking Southeast**

### **2.3 Closing Unit Group 29, 271-T Cage**

The 271-T Cage DWMU (Figure 5) is adjacent to the north side of the T Plant Complex, 271-T Building. The 271-T Cage area is an uncoated concrete surface approximately 20 feet long by 10 feet wide. The 271-T Cage is defined on the south side by the 271-T Building and the remaining three sides by metal chain-link fence material. The 271-T Cage area is covered with corrugated metal roofing material.

Weekly waste management area inspection records identified that the 271-T Cage may have managed dangerous or mixed waste in a CAA or SAA. The 271-T Cage does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 271-T Cage DWMU.

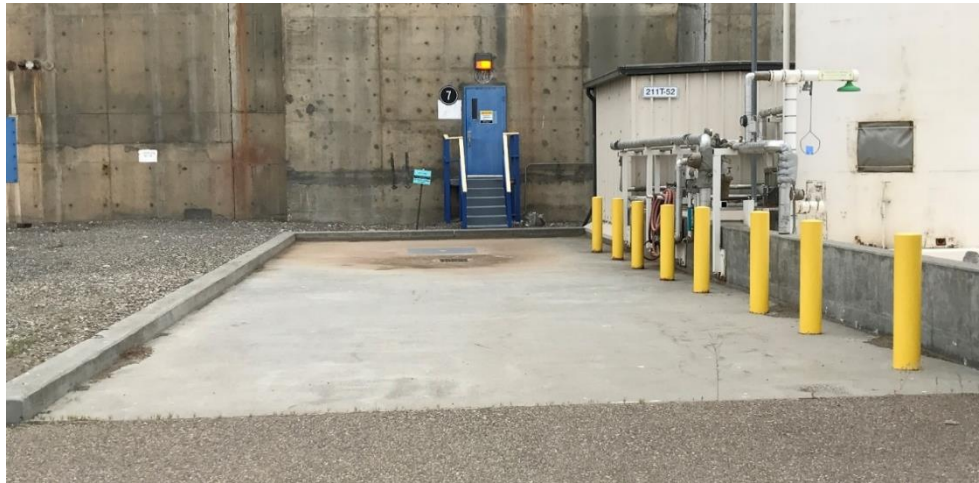


**Figure 5 T Plant 271-T Cage Outdoor Container Storage Area (May 2017), Looking South (Note: The structure behind the 271-T Cage is the 271-T Building)**

## **2.4 Closing Unit Group 30, 211-T Pad**

The 211-T Pad DWMU (Figure 6) is located west of the T Plant Complex 221-T Canyon Building and adjacent to the 211-T Building and ancillary equipment. The 211-T Pad area is a curbed, uncoated, concrete pad approximately 59 feet long by 20 feet wide that slopes into a blind sump. The 211-T Pad was generally used as secondary containment for tanker trucks that were used for non-waste chemical transfers.

Containerized dangerous and mixed waste was also stored on the 211-T Pad from October 1985 through April 2006. Waste management records indicate that 53 containers of mixed waste was stored, with a total volume of 83.9 m<sup>3</sup>. The 211-T Pad does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 211-T Pad DWMU.



**Figure 6 T Plant 211-T Pad Area Photo (June 2017), Looking East**

## **2.5 Closing Unit Group 37, 221-T Sand Filter Pad**

The 221-T Sand Filter Pad DWMU (Figure 7) is located to the northeast of the north end of the T Plant Complex, 221-T Canyon Building. The 221-T Sand Filter Pad is an uncovered gravel area approximately 180 feet long by 60 feet wide. The 221-T Sand Filter Pad was previously used for storing containers of various sizes and volumes, and a variety of waste streams to ensure adequate capacity and operational flexibility to support T Plant activities.

Weekly waste management area inspection records identified that the 221-T Sand Filter Pad may have managed non-dangerous, dangerous, and mixed waste in a CAA or SAA. The 221-T Sand Filter Pad does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 221-T Sand Filter Pad DWMU.



**Figure 7 T Plant 221-T Sand Filter Pad (March 2018), Looking Northeast**



## 2.6 Closing Unit Group 39, 2401-W Waste Storage Building

The 2401-W Waste Storage Building DWMU (Figure 8) is located on the south end of the Central Waste Complex (CWC). It is a pre-engineered steel structure approximately 50 feet wide by 80 feet long by 20 feet high (to the eave). The foundation is integrated into a perimeter concrete curb 6 inches above grade. The floors were coated with an epoxy resin floor surfacing system that was compatible with the stored waste.

The 2401-W Waste Storage Building stored 318 containers of dangerous and mixed waste with a total volume of 203 m<sup>3</sup>. The 2401-W Waste Storage Building also stored dangerous and mixed waste in a CAA. Dangerous waste was first stored in May 1989. The last dangerous waste was removed in November 2010 from the CAA. The 2401-W Waste Storage Building does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 2401-W Waste Storage Building DWMU. The 2401-W Waste Storage Building is currently used for equipment and material storage, as well as recyclable and universal waste storage to support CWC-WRAP activities.



**Figure 8 CWC-WRAP 2401-W Building (East) (February 2018), Looking Southeast**

## 2.7 Closing Unit Group 41, 221-T Railroad Cut

The 221-T Railroad Cut DWMU (Figure 9) is an uncovered gravel area with railroad tracks located west of the north end of the T Plant Complex 221-T Canyon Building, outside of the 221-T Railroad Tunnel. The 221-T Railroad Cut is approximately 309 feet long by 50 feet wide at the fence and 33 feet wide at the 221-T Railroad Tunnel end for a total approximate area of 14,603 square feet. The 221-T Railroad Cut was used to store mixed waste in a CAA or SAA, while being transferred into or out of the 221-T Railroad Tunnel.

Weekly inspection records of CAAs and SAAs identified that the 221-T Railroad Cut may have managed non-dangerous, dangerous, and mixed waste. The 221-T Railroad Cut does not currently store dangerous or mixed waste. Future storage of dangerous or mixed waste is not authorized within the 221-T Railroad Cut DWMU.



**Figure 9 T Plant 221-T Railroad Cut (October 2017), Looking Southeast**

### **3.0 CLASS 3 PERMIT MODIFICATION PROCESS HISTORY**

In June 2013, the U.S. Environmental Protection Agency (EPA) issued a Consent Agreement and Final Order (CAFO) against the DOE-RL for violations of the *Resource Conservation and Recovery Act of 1976* (RCRA) program at the Hanford Facility's SWOC. The SWOC includes the T Plant Complex, CWC-WRAP, and Low-level Burial Grounds (LLBG) Trenches 31, 34, and 94. The EPA CAFO was based on information collected during a 2011 EPA inspection.

The violations included:

- Storage of hazardous waste without a permit.
- Failure to meet closure plan requirements.
- Failure to submit closure notice and closure plans.
- Failure to comply with land disposal restriction requirements.

Changes to the Hanford Site-wide Permit are required by the EPA CAFO issued against DOE-RL. These changes are summarized as follows:

- Stop receiving waste in the DWMUs listed in the CAFO.
- Submit closure plans to Ecology within 120 days of the effective date of the CAFO, for the following DWMUs: T Plant 271-T Cage; T Plant 211-T Pad; T Plant 221-T Sand Filter Pad; T Plant 221-T R5 Waste Storage Area; T Plant 277-T Outdoor Storage Area; CWC Outside Storage Area A; CWC Outside Storage Area B; and LLBG FS-1 Outdoor Container Storage Area.

- Immediately comply with all applicable final facility standards for the management of dangerous waste found in WAC 173-303-600(I) for the DWMUs listed in the CAFO.
- Submit closure plans to Ecology for the T Plant 221-T Railroad Tunnel and CWC 2401-W Building within 120 days of the effective date of the CAFO, unless prior to that date Ecology approves an extension pursuant to 40 Code of Federal Regulations (CFR) 265.112(d)(2), as incorporated and modified by reference by WAC 173-303-400.
- Immediately stop the placement of prohibited dangerous waste in LLBG Trenches 31 and 34, unless the waste meets land disposal treatment standards found in WAC 173-303-140.

On October 11, 2013, DOE-RL submitted a Class 3 permit modification request to Ecology that included nine closure plans for the DWMUs listed in the EPA CAFO. On October 18, 2013, DOE-RL submitted five additional closure plans for DWMUs not listed in the EPA CAFO (non-CAFO). In all, 14 closure plans were submitted. The DOE-RL issued the closure plans for a 60-day public comment period as required by WAC 173-303-830(4)(c) that began on October 30, 2013, and ended on January 6, 2014. The Permittees also held a public meeting on December 9, 2013, at the Richland Public Library. Fifty-three public comments were received on the closure plans during the public comment period.

Ecology performed a completeness review as required in WAC 173-303-840(1)(b) and notified the Permittees on July 29, 2015, that the permit application was incomplete (15-NWP-145).

Since 2015, Ecology has been working with the DOE-RL to get the CAFO and non-CAFO DWMU closure plans into the Hanford Site-wide Permit. Seven of the fourteen closure plans are part of this Class 3 permit modification, and include the following:

- The 211-T Pad, 221-T Sand Filter Pad, 271-T Cage, 277-T Outdoor Storage Area, and the 2401-W Waste Storage Building (CAFO units).
- The 221-T Railroad Cut and the 277-T Building (non-CAFO units).

One of the 14 identified closing DWMUs (LLBG FS-1 Outdoor Container Storage Area) has completed closure. Ecology accepted clean closure certification on October 25, 2016, and LLBG FS-1 Outdoor Container Storage Area was removed from the Hanford Site-wide Permit on December 14, 2016.

From 2015 to 2019, Ecology worked with the Permittees to resolve multiple closure plans issues such as closure plan schedules, closure performance standards, decontamination methods, and site-specific data quality objectives. These issues and their resolution are detailed below. The Permittees delivered a second submittal and supporting documentation for the seven closure plans in this permit modification on August 14, 2018 (18-AMRP-0150), October 16, 2018 (19-AMRP-0009), and November 6, 2018 (19-AMRP-0021). For five of the seven closure plans, Ecology and the Permittees could not reach agreement on focused sampling requirements for determining soils meet clean closure performance standards as required by WAC 173-303-610(2)(b)(i). For four of the seven closure plans, Ecology and the Permittees also could not reach agreement on clean closure standards for concrete structures as required by WAC 173-303-610(2)(b)(ii).



The following changes to DOE-RL's 2013 permit modification request submittal have been made in this draft permit modification based on public comments received, Ecology's completeness review, DOE-RL's 2018 submittals, and workshops between Ecology and the Permittees:

**Closure Plan Schedules:** Ecology found closure plan schedules were incomplete. The Permittees agreed to include closure schedules for each DWMU that detail the total time required to close, and the time required for intervening closure activities in accordance with WAC 173-303-610(3)(a)(vii). Complete closure schedules are now included in each DWMU closure plan.

**Soil Closure Performance Standards:** There were several issues with determining soil closure performance standards (CPS) and they are presented below.

- WAC 173-303-610(2)(b)(i) requires the use of the Model Toxic Control Act (MTCA) regulations (WAC 173-340) to set numeric cleanup levels for soils, calculated according to MTCA Method B, or in some cases MTCA Method A. The CPS proposed by the Permittees were based on MTCA Method C, industrial cleanup standards, which is specifically excluded by WAC 173-303-610(2)(b)(i) for clean closures. Ecology's final determination on the SWOC CPS was transmitted to the Permittees in letter 17-NWP-022. The CPS in each closure plan is now based on an evaluation of all exposure pathways, using MTCA Method B (or in some cases MTCA Method A) cleanup levels were applicable.
- Since many of the SWOC DWMUs did not have complete records of what waste had been stored within them or the waste types were unknown, it was decided that all the known waste constituents at SWOC facilities would be used on the CPS list. Most of the DWMUs, will be sampled and analyzed for all the SWOC dangerous waste constituents. For DWMUs with adequate records of specific waste stored there, only those waste constituents will be addressed.
- Due to the length of time needed to get these seven closure plans ready for public comment, some changes to the information MTCA uses to calculate numeric values occurred. Until a closure plan actually becomes part of the Hanford Site-wide Permit, the calculated numeric CPS values are subject to revaluation and potential change. The required minor changes were made to the SWOC CPS table issued in Ecology letter 17-NWP-022 and discussed and shared with the permittees. In addition, the Toxic Cleanup Program's *MTCA Cleanup Levels and Risk Calculation (CLARC) Data Tables* were updated in 2019. The CPS values in the seven closure plans going out for public comment reflect these changes.

**Revised Focused Sampling Strategy:** Ecology performed a closure field evaluation (i.e., a walk down to verify closure sampling locations) of the DWMUs on November 11, 2018. During the walk down, Ecology observed a number of cracks and other openings in the concrete structures through which waste, debris, or decontamination media could be released to the environment. In order to verify that the soils underlying these concrete structures meet the clean closure performance standard, Ecology determined that additional soil sampling would be necessary. This is consistent with Ecology Publication 94-111 *Guidance for Clean Closure of Dangerous*

*Waste Units and Facilities* (Publication #94-111<sup>2</sup>), (see Sections 4.0, 7.2, and 7.3). Ecology identified additional focused soil sampling locations based on site coverage; missing coatings; location of cracks, construction joints/seams, and drainage areas/sumps; and penetrations of the concrete pads by posts and rails. These additional soil sample locations are included in the closure plans. Ecology is requiring the following changes in focused sampling:

<b>Changes to Focused Sampling (Pre-Appeal)</b>		
<b>DWMU</b>	<b>Permittee 2018 Proposal</b>	<b>Ecology 2021 Determination</b>
271-T Cage	No sampling	Six (6) soil samples
277-T Outdoor Storage Area	Three (3) soil samples	Ten (10) soil samples
277-T Building	One (1) soil sample	Six (6) soil samples; one (1) concrete chip sample
211-T Pad	One (1) soil sample	Twelve (12) soil samples; one (1) concrete chip sample
2401-W Waste Storage Building	No sampling	Six (6) soil samples

Ecology also added non-statistical concrete chip sampling for the 271-T Cage, 277-T Outdoor Storage Area, 277-T Building, and 211-T Pad closure plans to meet site-specific decontamination method evaluation criteria requirements (please see Closure Performance Standards for Concrete Surfaces discussion below). The basis for the revised sampling strategy for each closure plan is further detailed in Sections 5.1.1 through 5.1.7 of this Fact Sheet. Please note, each DWMU closure is site-specific, and decisions made for individual DWMUs may not be used as a precedent for determining closure requirements for other DWMUs.

**Closure Performance Standards for Concrete Surfaces:** In the Permittees' 2013 permit modification request (13-ESQ-0074; 14-ESQ-0003), the Permittees originally proposed statistical concrete chip sampling/core sampling to determine if concrete structures meet clean closure standards for the 271-T Cage, the 277-T Outdoor Storage Area, and the 211-T Pad. This proposed approach involved taking 20 concrete chip or core samples at each DWMU. For the 277-T Building and 2401-W Waste Storage Building, the Permittees originally proposed decontamination in accordance with alternative treatment standards outlined in Publication #94-111 to a "clean debris surface;" and rinsate sampling to confirm clean closure.

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<sup>2</sup><https://apps.ecology.wa.gov/publications/SummaryPages/94111.html>.

From 2016 through 2018, Ecology and the Permittees had numerous workshops, meeting discussions, and letter exchanges regarding closure performance standards for concrete surfaces. During this time, the Permittees moved away from the originally proposed concrete sampling. Their reasoning was that the sampling would damage the concrete surfaces, and they wanted to reuse these areas for other non-dangerous waste management purposes after clean closure. Ecology suggested the permittees consider a site-specific decontamination method as described in Ecology Publication 94-111, *Guidance for Clean Closure of Dangerous Waste Units and Facilities*.<sup>3</sup> A proposed site-specific decontamination method must include evaluation criteria for determining whether decontamination was successful. The Permittees proposed the site-specific decontamination method of “high pressure steam or water sprays,” and the evaluation criterion of “clean debris surface.”

In November 2016, the Permittees stated in letter 17-AMRP-0016 they disagreed with concrete sampling as they believed it was not a RCRA requirement. The Permittees also stated that no closure performance standards exist for concrete which would be used to demonstrate closure, and that soil is the only media addressed in closure performance standards. In July 2017, in letter 17-AMRP-0217 the Permittees proposed to treat concrete surfaces using a physical extraction method from 40 CFR § 268.45 Table 1, to meet the “clean debris surface” standard. The treatment methods listed were high pressure steam or water sprays; water washing and spraying; and liquid vapor phase solvent extraction as physical extraction methods. In August 2017, Ecology responded in letter 17-NWP-100 and clarified that only high pressure steam and water sprays are physical extraction methods; water washing and spraying, and liquid or vapor phase solvent extraction are chemical extraction methods. Ecology also identified the performance standard for physical extraction of concrete is the removal of at least 0.6 cm of the surface layer and treatment to a “clean debris surface.” In October 2017, the Permittees responded in letter 18-AMRP-0005 and provided example closure plan language that included a proposed decontamination method of treating to a “clean debris surface” using high pressure steam and water sprays. They also proposed if “clean debris surface” cannot be achieved through the surface decontamination method, an extraction of 0.6 cm will be performed using physical extraction techniques according to 40 CFR § 268.45 Table 1 which could include abrasive blasting; scarification, grinding, and planing; and/or spalling. In October 2017, Ecology responded in letter 17-NWP-150 accepting modifications regarding the “clean debris surface” standard. The Permittees began moving forward with preparing the closure plans for formal submittal.

In May 2018, Ecology clarified in letter 18-NWP-070 that options for decontaminating concrete include either meeting the performance standard in 40 CFR § 268.45 Table 1 (which includes removal of the top 0.6 cm of the concrete surface to a “clean debris surface”), or to propose a site-specific decontamination method as described in Publication #94-111. Ecology further clarified that if Permittees propose a site-specific decontamination method as described in Publication #94-111 and include the evaluation criteria of “clean debris surface,” whether or not the area meets “clean debris surface” will fall to the Independent Qualified Registered

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<sup>3</sup><https://apps.ecology.wa.gov/publications/documents/94111.pdf>.

Professional Engineer that certifies closure. The Permittees continued to move forward with preparing the closure plans for formal submittal, and submitted four of the closure plans on August 14, 2018 (18-AMRP-0150). Supplemental photographs and sample figures were provided on October 16, 2018 (19-AMRP-0009).

On October 31 and November 5, 2018, Ecology discussed the four closure plan submittals with Ecology's Washington State permitting oversight program (Hazardous Waste and Toxics Reduction Program [HWTR]). After consulting with HWTR, Ecology determined that for these closing DWMUs, "clean debris surface" is not an appropriate evaluation criterion for the site-specific decontamination method of high pressure steam and water sprays, and that some sampling to demonstrate successful decontamination of the concrete will be required. On November 5, 2018, Ecology briefed the Permittees on the issue and requested the remaining closure plan submittals be delayed until an appropriate evaluation criterion could be agreed upon. Ecology also requested a walk down of the closing units in order to verify sampling locations. The Permittees informed Ecology that submittal of the remaining closure plans was already in progress and could not be delayed. The Permittees submitted the remaining closure plans on November 6, 2018 (19-AMRP-0021). On November 11, 2018, Ecology performed a walk down of the closing units to verify closure sampling locations. On December 17, 2018, Ecology shared feedback from the walk down and requested changes to five of the CAFO closure plans. On January 14, 2019, Ecology placed the draft permit modification on hold until changes to the five closure plans could be resolved. On February 21, 2019, Ecology provided the Permittees a revised sampling approach for the five closure plans. On February 25, 2019, Ecology and the Permittees discussed the revised sampling approach and needed closure plan changes. The Permittees responded that any additional changes must be made by Ecology because the closure plans have already been submitted, and that the Permittees will help provide technical support, as needed. Ecology began closure plan revisions. In a June 4, 2019, email the Permittees agreed to change to using a physical extraction method from 40 CFR § 268.45, Table 1, and remove 0.6 cm of the concrete to a "clean debris surface" for the 2401-W Waste Storage Area. On July 15, 2019, Ecology discussed needed changes for the five closure plans, and the need for technical assistance. Ecology provided an outline of needs and a revised sampling figures for each of the five closure plans. On July 29, 2019, the Permittees informed Ecology they do not concur with Ecology's changes, and offered two options: move forward with the closure plans submitted in 2018 (with minor changes), or Ecology can move forward with their changes without technical assistance from the Permittees. Ecology chose to move forward without technical assistance from the Permittees, and proceeded to develop the revised sampling strategy, adding concrete chip sampling as the evaluation criterion for determining if decontamination of concrete surfaces using high pressure steam or water sprays is successful.

The basis for this decision is as follows: Clean closure requires the removal or decontamination of all contaminated structures associated with the closing DWMU. WAC 173-303-610(2)(b)(ii) requires Ecology to establish appropriate clean closure standards for contaminated structures "on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of

dangerous waste constituents.” Because WAC Chapter 173-303 does not establish specific requirements for the decontamination of structures, Ecology considers comparable treatment standards from the Land Disposal Restrictions (LDR) program in making case-by-case determinations of the appropriate clean closure requirements.

With respect to contaminated concrete structures, Ecology has determined that the LDR treatment standard for concrete “debris” is an appropriate decontamination standard for clean closure. See Publication #94-111, Section 5.3.1. This is consistent with guidance from the EPA on the subject:

Existing closure standards for hazardous waste management facilities require “decontamination” of contaminated structures and equipment. See, e.g., §§ 264.114 and 265.114. The precise meaning of decontamination presently is determined on a case-by-case basis through review of the facility’s closure plan. [...] The Agency believes that the treatment methods in today’s rule would always satisfy the decontamination standard in the closure provisions. After all, the purpose of these treatment methods is to decontaminate.

(57 Fed. Reg. 37194, 31243, Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris [Aug. 18, 1992]).

Accordingly, Section 5.6 of Publication #94-111 sets forth two options for decontaminating concrete structures:

1. Use a concrete debris-specific LDR treatment standard specified in 40 CFR § 268.45 Table 1 [incorporated by reference at WAC 173-303-140(2)(a)]; or
2. Propose a site-specific method of decontamination and evaluation criteria.

The Permittees proposed using “high pressure steam or water sprays” to decontaminate the concrete structures at issue. This is one of the Physical Extraction methods identified in 40 CFR § 268.45, Table 1. However, this method of decontamination must be accompanied by removal of at least 0.6 cm of the surface layer and treatment to a “clean debris surface” in order to meet the LDR treatment standard for concrete debris. The reason for removing 0.6 cm of the surface layer before applying the performance standard of “clean debris surface” is to remove any contamination that has migrated into the porous concrete surface.

As described by EPA in the preamble to the final rule for Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris:

(b) Brick, Cloth, Concrete, Paper, Rock, Pavement, and Wood. The performance standard for these types of debris requires: (1) Removal of at least 0.6 centimeters of the surface layer, and (2) treatment to a “clean debris surface.” Removal of 0.6 centimeters of the surface layer is required for these types of debris because they may be porous and toxic contaminants may [be] absorbed within the debris.

(57 Fed. Reg. at 37230).

Additionally, EPA explained that for some debris types, the performance standard cannot be met using certain treatment technologies, and gives as an example high pressure steam and water sprays used to treat brick or concrete.

An example of where the performance standard cannot be met for a technology/debris combination is high pressure steam and water spray used to treat brick or concrete. As discussed below, because these debris types are porous and toxic contaminants may be adsorbed below the surface of the debris, the performance standard requires removal of at least the outer 0.6 centimeter surface layer. This technology cannot meet that performance standard for those types of debris. Rather than explicitly prohibiting such practices, however, such practices will be precluded because of the inability to comply with the standards.

(57 Fed. Reg. at 37229).

For the 271-T Cage, the 277-T Outdoor Storage Area, the 277-T Building, and the 211-T Pad DWMUs, the Permittees do not want to remove 0.6 cm of the surface layer of concrete structures that need to be decontaminated, as they plan to reuse these areas for other purposes after clean closure. As a result, the Permittees cannot demonstrate compliance with the LDR treatment standard for concrete debris using high pressure steam or water sprays. Ecology requested the Permittees propose appropriate evaluation criteria (e.g., concrete chip sampling). The Permittees declined to propose an evaluation criterion other than “clean debris surface.”

Ecology has agreed the Permittees may continue to use high pressure steam or water sprays as a site-specific method of decontamination for concrete structures. Ecology has also determined that “clean debris surface” cannot be used as the evaluation criterion to determine clean closure unless at least 0.6 cm of the surface layer is first removed, for the reasons described above. As such, Ecology is requiring non-statistical concrete chip sampling to be used as the evaluation criterion to demonstrate successful decontamination of the concrete structures.

The following table outlines changes in the concrete closure performance standards from the Permittees’ original submittal, their second submittal, and Ecology’s final determination in 2021 (pre-appeal).

<b>Changes to Closure Performance Standards for Concrete Surfaces</b>			
<b>DWMU</b>	<b>Permittee 2013 Original Proposal</b>	<b>Permittee 2018 Proposal</b>	<b>Ecology 2021* Determination</b>
271-T Cage	No decontamination; twenty (20) statistical concrete chip/core samples to confirm clean closure.	Decontaminate using high pressure steam or water sprays to a “clean debris surface.”	Decontaminate using high pressure steam or water sprays; confirm clean closure by taking five (5) non-statistical concrete chip samples.



<b>Changes to Closure Performance Standards for Concrete Surfaces</b>			
<b>DWMU</b>	<b>Permittee 2013 Original Proposal</b>	<b>Permittee 2018 Proposal</b>	<b>Ecology 2021* Determination</b>
277-T Outdoor Storage Area	No decontamination; twenty (20) statistical gravel/soil samples, & concrete chip/core samples to confirm clean closure.  (Note: asphalt areas & concrete pads were combined into one area, & Ecology was unable to differentiate gravel/soil samples from concrete samples.)	Decontaminate concrete pads using high pressure steam or water sprays to a “clean debris surface.”  (Note: Statistical soil sampling is proposed to confirm clean closure of the gravel/asphalt area.)	Decontaminate concrete pads using high pressure steam or water sprays; confirm clean closure by taking nine (9) non-statistical concrete chip samples.  (Note: Ecology agrees with statistical soil sampling of the gravel/asphalt area to confirm clean closure.)
277-T Building	Decontaminate using alternative treatment standards in Publication #94-111 to a “clean debris surface;” sample decontamination rinsate to confirm clean closure.	Decontaminate using high pressure steam or water sprays to a “clean debris surface.”	Decontaminate using high pressure steam or water sprays; confirm clean closure by taking six (6) non-statistical concrete chip samples.
211-T Pad	No decontamination; twenty (20) statistical concrete chip/core samples to confirm clean closure.	Decontaminate using high pressure steam or water sprays to a “clean debris surface.”	Decontaminate using high pressure steam or water sprays; confirm clean closure by taking six (6) non-statistical concrete chip samples.

<b>Changes to Closure Performance Standards for Concrete Surfaces</b>			
<b>DWMU</b>	<b>Permittee 2013 Original Proposal</b>	<b>Permittee 2018 Proposal</b>	<b>Ecology 2021* Determination</b>
2401-W Waste Storage Building	Decontaminate using alternative treatment standards in Publication #94-111 to a “clean debris surface;” sample decontamination rinsate to confirm clean closure.	Decontaminate using high pressure steam or water sprays to a “clean debris surface.” If “clean debris surface” is not met, follow with removal of 0.6 cm of the surface layer using physical extraction methods from 40 CFR § 268.45, Table 1.	Decontaminate using physical extraction method of abrasive blasting; scarification, grinding, and planing; and/or spalling to remove at least 0.6 cm of the concrete surface layer to a “clean debris surface.”

\*Ecology’s determination made prior to the Permittee Appeal of the Permit Modification.

The concrete chip samples will be analyzed and compared against the closure performance standards for soils (per guidance found in Publication #94-111, Sections 5.5 and 5.6), as originally proposed in the Permittees’ 2013 permit modification request (13-ESQ-0074; 14-ESQ-0003). If closure performance standards are met, the concrete will be considered clean.

Where a site-specific decontamination method is used, non-statistical concrete chip sampling and standards for evaluating the samples are now included in the DWMU closure plans. The decontamination method and associated evaluation criteria that have been selected for these closures are consistent with Publication #94-111 (see Section 5.6) as well as other Washington State dangerous waste permits.

**Data Quality Objectives (DQO):** Ecology found the DQO information supporting the Sampling and Analysis Plans was insufficient, as it relied heavily on the 200-MG-1 Operable Unit DQO. Ecology transmitted letter 17-NWP-148 to the Permittees explaining the need for site-specific DQOs, and for the removal of the 200-MG-1 DQO information. In response letter 18-AMRP-0100, the Permittees agreed to remove the 200-MG-1 DQO information from the closure plans and agreed to add site-specific DQO information. Site-specific DQO information is now included in each DWMU closure plan. This includes a complete evaluation of all environmental pathways and associated closure performance standards. Each DWMU closure plan was reevaluated and changes made to the sampling and analysis plans as necessary, to reflect the new DQO information.

The draft permit modification to Rev. 8C of the Hanford Site-Wide Permit was 8C.2018.6D. It was issued into the Hanford Site-wide Permit in December of 2021 as 8C.2021.1F.

Ecology addressed public comments received during the Permittees' comment period in a response to comments document. The response to comment document accompanied the draft permit modification when it was put out for public comment in 2021. It is not required to be available as part of the current Agency-Initiated Permit Modification.

#### **4.0 2021 CLASS 3 PERMIT MODIFICATION APPEAL AND 2022 SETTLEMENT AGREEMENT**

On Dec. 6, 2021, Ecology issued a final Class 3 permit modification (8C.2021.1F) to incorporate final status Closure Plans and Unit-Specific Permit Conditions for the following CUGs into the Site-wide Permit

- CUG 27, 277-T Building.
- CUG 28, 277-T Outdoor Storage Area.
- CUG 29, 271-T Cage.
- CUG 30, 211-T Pad.
- CUG 37, 221-T Sand Filter Pad.
- CUG 39, 2401-W Waste Storage Building.
- CUG 41, 221-T Railroad Cut.

Pursuant to WAC 173-303-840(8)(b)(iii), a final permit issued under Ecology's dangerous waste authority will become effective 30 days after service of the notice of decision, unless review of the permit is requested under RCW 43.21B. On January 5, 2022, DOE-RL and its contractor CPCCo filed an appeal of Modification 8C.2021.1F to Permit No. WA7890008967 with the PCHB, thus staying the entire permit modification from going into effect.

An Appeal Hearing was scheduled for January 16-19, 2023. In the interim, discussions continued between Ecology and DOE-RL/CPCCo, and mediation of the dispute was proposed in lieu of the hearing. Mediation began in June 2022 and by October 2022 all parties had reached a Settlement Agreement (PCHB No. 22-001).

#### **5.0 2023 PROPOSED AGENCY-INITIATED PERMIT MODIFICATION TO PART V OF THE HANFORD SITE-WIDE PERMIT**

This proposed draft Agency-Initiated Permit Modification 8C.2023.1D will modify and add CUG 27, 277-T Building; CUG 28, 277-T Building Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; CUG 37, 221-T Sand Filter Pad; CUG 39, 2401-W Waste Storage Building; and CUG 41, 221-T Railroad Cut to Part V of the Hanford Site-wide Permit. The draft Agency-Initiated Permit Modification includes:

- Unit-Specific Permit Conditions – for all seven CUGs.
- Addendum H, Closure Plans – for five of the seven CUGs (Two CUGs had no Closure Plan changes required by the Settlement Agreement).

## **5.1 Closure Actions**

Closure of the DWMUs will be conducted in accordance with the approved Addenda H, Closure Plans. Clean closure will be based on requirements in WAC 173-303-610(2), "Closure performance standard." Those regulations require closure of the facility in a manner that:

- Minimizes the need for further maintenance.
- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere.
- Returns the land to the appearance and use of surrounding land areas, to the degree possible, given the nature of the previous dangerous waste activity.

### **5.1.1 Changes to Concrete Decontamination Method per the Settlement Agreement**

Clean closure will be achieved through treatment of the concrete surface using the physical extraction method of Scarification, Grinding, and Planing as described in 40 CFR § 268.45, Table 1, to remove at least 0.6 cm (~1/4 in.) of the concrete surface and treatment to a "clean debris surface."

"Clean debris surface" means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits [...] shall be limited to no more than 5% of each square inch of surface area.

(40 CFR § 268.45, Table 1, footnote 3).

### **5.1.2 Changes to Focused Soil Sampling Locations and Amounts**

The table below shows the differences between the Ecology required soil samples as of December 2021 (issued into the Hanford Site-wide Permit) and the Settlement Agreement requirements (as of October 2022).

Original 2021 Changes to Focused Sampling (pre-Appeal)			2022 Focused Samples
DWMU	Permittee 2018 Proposal	Ecology 2021 Determination	Settlement Agreement 2022 (post-Appeal)
271-T Cage	No sampling	Six (6) soil samples	Four (4) soil samples
277-T Outdoor Storage Area	Three (3) soil samples	Ten (10) soil samples	Six (6) to eight (8) soil samples; two may be removed if metal posts do not penetrate the concrete pad
277-T Building	One (1) soil sample	Six (6) soil samples; one (1) concrete chip sample	Six (6) soil samples
211-T Pad	One (1) soil sample	Twelve (12) soil samples; one (1) concrete chip sample	Seven (7) soil samples
2401-W Waste Storage Building	No sampling	Six (6) soil samples	Four (4) soil samples

The sections below go into more detail on the changes to the focused soil samples.

### 5.1.3 Closure Actions for Closing Unit Group 27, 277-T Building

Clean closure for the 277-T Building requires closure performance standards be met for the soil beneath the concrete. The concrete surfaces will be decontaminated using a physical extraction method from 40 CFR § 268.45 to remove 0.6 cm (~1/4 in.) and treatment to meet a “clean debris surface.” To verify underlying soils are clean, sampling beneath the concrete pad and sump will be conducted. Results from soil samples will be analyzed to ensure closure performance standards are met.

Ecology and the Permittees were unable to come to agreement on the number and location of samples needed to verify clean closure standards have been met for the underlying soil. The Permittees proposed one soil sample beneath the sump. For the reasons described above, Ecology determined this proposal was not adequate to achieve clean closure standards. After reaching the Settlement Agreement, sampling requirements to the closure plan for the 277-T Building will include the following:

- Five focused soil samples. Justification – Five additional focused soil samples were added based on Ecology’s professional judgement, visual inspection performed by the Permittees, and walk down performed by Ecology. Publication #94-111, Section 7.2.2 states, “Focused sampling involves selective sampling of areas where contamination is expected or releases have been documented. Focused sampling should be conducted in

addition to grid sampling where there is evidence of leaks or spills or potential for a dangerous waste constituent to migrate.” CHPRC (CH2M Hill Plateau Remediation Company – contractor in charge before CPCCo took over the contract) performed a visual inspection on June 15, 2015 (see Attachment A in the 277-T Building Addendum H, “Closure Plan”). This 2015 inspection identified six total focused soil sample locations: three low point samples, two seam samples, and one sump sample. The concrete construction joint/seams within the 277-T Building are considered possible avenues for waste to migrate to the soil below the concrete. The low end of the sloping concrete floor and sump are also considered possible avenues for waste to migrate to the soil, as these are areas where waste could accumulate. Ecology performed a walk down on November 11, 2018, to verify these additional sample locations, and is in agreement with the Permittees’ 2015 visual inspection results that these six focused soil samples will provide an adequate representation of the soil below 277-T Building.

#### **5.1.4 Closure Actions for Closing Unit Group 28, 277-T Outdoor Storage Area**

Clean closure for the 277-T OSA requires closure performance standards be met for the underlying soil and asphalt. The concrete surfaces will be decontaminated using a physical extraction method from 40 CFR § 268.45 to remove 0.6 cm (~1/4 in.) and treatment to meet a “clean debris surface.” For soils, sampling of the soil beneath the concrete pads and asphalt will be conducted. Results from soil samples will be analyzed to ensure closure performance standards are met.

For asphalt, if analytical results from soil sampling below the asphalt meet closure performance standards, it will be assumed the asphalt meets closure performance standards as well. The assumption that the asphalt meets closure performance standards if the underlying soil meets closure performance standards is based on Ecology’s professional judgement, and Ecology’s walk down on November 11, 2018. Asphalt is porous by nature, but when new or resealed, has the ability to repel water. The condition of the 277-T OSA asphalt is:

- Weathered and faded with little visible tar-like binding material;
- Does not visibly repel water (i.e., most of the surface absorbs water and remains wet for some time after rain events); and
- The surface is visibly broken and rough (i.e., looks more like gravel than asphalt).

This is an indication of high porosity and loss of the organic material that binds asphalt and aggregate together. For these reasons, it can be inferred that any contamination on the asphalt surface would have migrated to the underlying soil. If the underlying soil meets closure performance standards, Ecology will consider the asphalt to have met closure performance standards as well.

Ecology and the Permittees are in agreement on the 21 statistical grid soil samples. However, Ecology and the Permittees were unable to come to agreement on the number and location of samples to verify clean closure standards are met for the concrete pads and soil underlying the concrete pads. After reaching the Settlement Agreement, sample numbers and locations will include the following:



- Two samples at corners on left side (facing building) of expansion joints on front concrete pad.
- Two samples at locations where metal posts appear to penetrate the concrete pad. Tests will be performed to determine if the posts actually penetrate all the way through the pad. If they do not documentation will be provided to Ecology and the samples will not be required to be taken.
- Three focused soil samples for the southwest (back) concrete pad. Justification – Three focused soil samples were added based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018. Two sampling locations were chosen at the low end of the sloping concrete pad where contamination would most likely migrate. One sampling location was identified adjacent to the manhole, which is another area with a likely potential for waste to migrate. Additionally, this pad is uncoated and it is uncertain if the 277-T OSA was used to manage dangerous and mixed waste or if dangerous or mixed waste residues are present.
- Steam condensate blowdown drain line. The Permittees originally proposed a focused soil sample at the steam condensate drain line. Based on Ecology’s professional judgement and Ecology’s walk down on November 11, 2018, Ecology agrees with this sampling location. Any waste from the 277-T Building sump would have drained through this line, which is in direct contact with the soil.

#### **5.1.5 Closure Actions for Closing Unit Group 29, 271-T Cage**

Clean closure for the 271-T Cage requires closure performance standards be met for the soil beneath the concrete. The concrete surfaces will be decontaminated using a physical extraction method from 40 CFR § 268.45 to remove 0.6 cm (~1/4 in.) and treatment to meet a “clean debris surface.” For soils, sampling of the soil beneath the raised loading dock will be conducted. Results from soil samples will be analyzed to ensure closure performance standards were met.

After reaching the Settlement Agreement, sampling requirements for the 271-T Cage will include the following:

- Four focused samples will be taken below the front drip edge of the raised concrete platform. Three samples are spaced at each of the corners (two) and middle (one) of the front edge, and one is to the right of and within one foot of the corner of the low point of the platform.

#### **5.1.6 Closure Actions for Closing Unit Group 30, 211-T Pad**

Clean closure for the 211-T Pad requires closure performance standards be met for the soil beneath the concrete. For concrete decontamination, a physical extraction method will be performed to remove 0.6 cm (~ 1/4 in.) and treatment to meet “clean debris surface” per 40 CFR § 268.45. To verify underlying soils are clean, sampling beneath the concrete pad and sump will be conducted. Results from soil samples will be analyzed to ensure closure performance standards were met.

After reaching the Settlement Agreement sampling requirements for the 211-T Pad will include the following:

- Two samples at the base of the guard posts nearest to the sump location (lowest point of the concrete pad).
- Four concrete cold joint samples; one on the north side by the berm (near sump), and one in the middle of the east side by the berm (near sump). Two samples will also be taken at each concrete seam, in the middle of the slab.
- One sample in the bottom of the sump.

### **5.1.7 Closure Actions for Closing Unit Group 39, 2401-W Waste Storage Building**

For the 2401-W Waste Storage Building, the concrete decontamination will use a physical extraction method to remove 0.6 cm (~ 1/4 in.) and treatment to meet “clean debris surface” per 40 CFR § 268.45.

After reaching the Settlement Agreement, sampling requirements for the 2401-W Waste Storage Building will include the following:

- Four focused soil sample locations along the construction joints/seams. These will be equidistant from each other, and the pad edges (outer walls).

### **5.2 Basis for Closing Unit Group Permit Conditions**

The Unit-Specific Permit Conditions and Addenda H in Part V, CUGs 27, 28, 29, 30, 37, 39, and 41 are intended to protect human health and the environment by ensuring the DWMUs are closed according to the approved Addendum H, Closure Plans. Ecology reviewed the closure plan submittals for these units, and has included permit conditions to ensure the Permittees comply with environmental performance standards, and modify the closure plans as needed during closure activities.

#### **The following are permit conditions for CUGs 28, 30, 37, and 41:**

Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, *Permit Applicability Matrix*, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.

Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.

Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within four business days of any deviations from the approved closure plan, in addition to documenting such deviations in the operating record. Ecology then has four business days to respond to the request. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure.

Permit Condition V.4.B.3 is intended to ensure sampling assumptions made in the Addendum H, Closure Plan are met. This condition will take one of two forms, depending on whether or not statistical grid sampling or non-statistical and/or focused sampling are used.

- Where statistical grid sampling is used, the Permittees must generate the Data Analysis Report in the Visual Sample Plan and submit it to Ecology within 30 days of the final receipt of laboratory analytical data from sampling. If the Data Analysis Report indicates that sampling assumptions are not met, the permit condition also requires the Permittees to submit a permit modification request to amend the closure plan within 60 days of completion of the submittal of the Visual Sample Plan Data Analysis Report to Ecology. The permit modification will include a revised sampling design and description of any additional closure work to be performed.
- Where only non-statistical grid sampling and/or focused sampling are used, the Permittees must compare the sampling analytical results directly to the closure performance standards specified in the sampling plan in Addendum H, Closure Plan to verify they have not been exceeded. If the closure performance standards have been exceeded, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work and/or sampling that would need to be done to achieve clean closure. The permit modification request must be submitted within 60 days of completion of the review of sampling data results.

Permit Condition V.4.B.4 ensures the closure activities for the DWMU are completed per WAC 173-303-610(6). The Permittees provide a certification that the DWMU has been closed in accordance with the Addendum H, Closure Plan. This certification is signed by the Permittees and an Independent Qualified Registered Professional Engineer. Ecology has the regulatory right to request a copy of the certification document, report, or any other related material. This permit condition also requests that all the documentation (reports, etc.) be provided to Ecology at the same time as the certification.

**The following are permit conditions for CUGs 27, 29 and 39:**

Permit Condition V.4.A is a standard condition that appears as the first permit condition for each unit group. It refers to the Hanford Site-wide Permit Attachment 9, *Permit Applicability Matrix*, which identifies which Part I and Part II Permit Conditions are applicable to DWMUs within Part III, V or VI unit groups. The permit condition also prevents conflicts between the unit group permit conditions, and the Part I and II Permit Conditions.

Permit Condition V.4.B.1 requires the Permittees to comply with all of the requirements set forth in the Addendum H, Closure Plan, and to close these units in accordance with the plan.

Permit Condition V.4.B.2 is intended to ensure that Ecology is notified within four (4) business days of any deviations from the approved closure plan, in addition to documenting such deviations in the operating record. Ecology then has four (4) business days to respond to the request. This allows Ecology to review the deviation to ensure it does not affect the final acceptance of closure.

Permit Condition V.4.B.3 requires the Permittees to notify Ecology in advance of conducting the visual inspection that will take place following removal of stored equipment, in order for Ecology to witness the inspection.

Permit Condition V.4.B.4 is intended to ensure sampling assumptions made in the Addendum H, Closure Plan are met. This condition will take one of two forms, depending on whether or not statistical grid sampling or non-statistical and/or focused sampling are used.

- Where statistical grid sampling is used, the Permittees must generate the Data Analysis Report in the Visual Sample Plan and submit it to Ecology within 30 days of the final receipt of laboratory analytical data from sampling. If the Data Analysis Report indicates that sampling assumptions are not met, the permit condition also requires the Permittees to submit a permit modification request to amend the closure plan within 60 days of completion of the submittal of the Visual Sample Plan Data Analysis Report to Ecology. The permit modification will include a revised sampling design and description of any additional closure work to be performed.
- Where only non-statistical grid sampling and/or focused sampling are used, the Permittees must compare the sampling analytical results directly to the closure performance standards specified in the sampling plan in Addendum H, Closure Plan to verify they have not been exceeded. If the closure performance standards have been exceeded, the Permittees will submit a permit modification request in accordance with Permit Condition I.C.3 to amend the Closure Plan to reflect the additional work and/or sampling that would need to be done to achieve clean closure. The permit modification request must be submitted within 60 days of completion of the review of sampling data results.

Permit Condition V.4.B.5 ensures the closure activities for the DWMU are completed per WAC 173-303-610(6). The Permittees provide a certification that the DWMU has been closed in accordance with the Addendum H, Closure Plan. This certification is signed by the Permittees and an Independent Qualified Registered Professional Engineer. Ecology has the regulatory right to request a copy of the certification document, report, or any other related material. This permit condition also requests that all the documentation (reports, etc.) be provided to Ecology at the same time as the certification.

## **6.0 PROCEDURES FOR REACHING A FINAL DECISION ON THE DRAFT PERMIT MODIFICATION**

The Washington State Dangerous Waste Regulations in WAC 173-303-830 describe the types of changes or modifications that may be made to a Dangerous Waste Permit issued by Ecology.

This draft permit modification was prepared according to the procedures in WAC 173-303-840(2). As required by WAC 173-303-840(3)(d), draft permits issued by Ecology will have at least a 45-day public comment period. The public comment period for this draft permit begins on March 13, 2023, and ends on April 28, 2023.

Submittal of comments to eComments (electronic comment submittal) is the preferred method for providing comments to Ecology. These comments must be received no later than midnight on April 28, 2023. The following is the link to eComments:

<http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>

In the event it is not possible to provide electronic comments, written comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) April 28, 2023. Direct all written comments to:

Daina McFadden  
Washington State Department of Ecology  
3100 Port of Benton Blvd.  
Richland, WA 99354  
E-mail address: [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov)

In accordance with WAC 173-303-840(10)(c), when a permit is modified, only those conditions to be modified will be reopened when a new draft permit is prepared. In the case of this draft permit modification, only the redline changes to the Part V permit files listed below are open for public comment:

- Unit-Specific Permit Condition files for CUG 27, 277-T Building; CUG 28, 277-T Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; CUG 37, 221-T Sand Filter Pad; CUG 39, 2401-W Waste Storage Building; and CUG 41, 221-T Railroad Cut.
- Addendum H, Closure Plan files for CUG 27, 277-T Building; CUG 28, 277-T Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; and CUG 39, 2401-W Waste Storage Building.
- Supporting documents – Addendum H, Closure Plans for the CUG 37, 221-T Sand Filter Pad and CUG 41, 221-T Railroad Cut (part of appeal, but no changes were required per the Settlement Agreement).

All other aspects of the existing Hanford Site-wide Permit remain in effect for the duration of the draft permit modification.

Ecology will consider and respond to all written comments on this draft permit modification submitted by the deadlines above. At the completion of the 45-day public comment period Ecology will make a final permitting decision. If the final decision is to issue the permit, Ecology will issue a final permit for Part V, CUG 27, 277-T Building; CUG 28, 277-T Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; CUG 37, 221-T Sand Filter Pad; CUG 39, 2401-W Waste Storage Building; and CUG 41, 221-T Railroad Cut to the Permittees, that will become effective 30 days after the issuance date. If the final permit decision includes substantial changes to the draft permit modification because of public comment, Ecology will consider initiating a new public comment period.

A public hearing is not scheduled, but if there is enough interest, we will consider holding one.

To request a hearing or for more information, contact:

Daina McFadden  
Washington State Department of Ecology  
(509) 372-7950  
E-mail address: [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov)

Ecology will also issue a Response to Comments document to the Permittees and the public upon final issuance of the permit. The final permit modification may be appealed within 30 days after issuance. If there is no appeal, the permit will become effective 30 days following issuance.

Copies of the following documents for Part V are available for review at the Hanford Public Information Repositories locations listed below. For additional information, call (509) 372-7950 or email [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov).

## **Hanford Public Information Repositories and Administrative Records**

### **Richland, Washington**

Washington State Department of Ecology  
Nuclear Waste Program Resource Center  
3100 Port of Benton Blvd.  
Richland, WA 99354  
(509) 372-7950

Washington State University Tri-Cities  
Department of Energy Reading Room  
2770 Crimson Way, Room 101L  
Richland, WA 99354  
(509) 375-7443

U.S. Department of Energy  
Administrative Record  
2440 Stevens Center Place, Room 1101  
Richland, WA 99354  
(509) 376-2530

### **Other Locations:**

#### **Portland**

Portland State University  
Branford Price Millar Library  
1875 Southwest Park Avenue  
Portland, OR 97201  
(503) 725-4542

#### **Spokane**

Gonzaga University  
Foley Center  
502 East Boone Avenue  
Spokane, WA 99258  
(509) 313-6110

#### **Seattle**

University of Washington Suzzallo Library  
P.O. Box 352900  
4000 15<sup>th</sup> Avenue Northeast  
Seattle, WA 98195  
(206) 543-5597

Information on the proposed permit modification is also available online at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>. If special accommodations are needed for public comment, contact Ecology's Nuclear Waste Program at (509) 372-7950 or [hanford@ecy.wa.gov](mailto:hanford@ecy.wa.gov).

## **7.0 STATE ENVIRONMENTAL POLICY ACT (SEPA)**

Appendix R (Cumulative Impacts: Assessment Methodology) of the Tank Closure & Waste Management Environmental Impact Statement (EIS) includes CUG 27, 277-T Building; CUG 28, 277-T Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; CUG 37, 221-T Sand Filter Pad; CUG 39, 2401-W Waste Storage Building; and CUG 41, 221-T Railroad Cut for the Hanford Site. Based on that analysis, Ecology has done a Determination of Significance/Adoption Notice for the EIS.

The EIS analyzed impacts from the current DOE-RL vision that calls for the clean closure of CUG 27, 277-T Building; CUG 28, 277-T Outdoor Storage Area; CUG 29, 271-T Cage; CUG 30, 211-T Pad; CUG 37, 221-T Sand Filter Pad; CUG 39, 2401-W Waste Storage Building.; and CUG 41, 221-T Railroad Cut.

Link to Appendix R *Cumulative Impacts: Assessment Methodology for the Hanford Site*:  
[https://www.hanford.gov/files.cfm/DOE\\_EIS-0391\\_2012\\_App%20R%20Cumulative%20Impacts\\_Assessment%20Methodology.pdf](https://www.hanford.gov/files.cfm/DOE_EIS-0391_2012_App%20R%20Cumulative%20Impacts_Assessment%20Methodology.pdf).